

## ***Interactive comment on* “Community-based landslide hazard probability and risk assessment: A case in west Hubei, China” by Sheng Fu et al.**

### **Anonymous Referee #2**

Received and published: 14 November 2019

#### General comments

First, it is important to clarify that the two versions of the manuscript were reviewed (August 23rd and October 22nd) and I can affirm that the manuscript improved largely in the second version. My comments refer to the version contained in the document named “nhess-2019-259-AC1-supplement”.

The manuscript contains the results of a solid and detailed research on hazard and risk at a local scale in the Hubei province in China.

In general terms, the ideas of the authors are clear. However, the document presents several grammatically awkward sentences, expressions that should be checked and lacks connections among the sentences. Therefore, proofreading and English editing

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services are recommended to ensure that the English of the manuscript is up to the publication standard.

**Specific comments** The term Community-based leads the reader to think that the performed hazard and risk analysis involved members of the local community as part of a participatory methodology. In this case, it seems that you use the term “Community-based” to refer to the scale of the analysis, more than the participants of the process. I would suggest to change the title accordingly. For example, in the introduction you used the more appropriate term “community-level”, or you could use something like local -level, community scale, or any other term that refers to the scale of your work.

In general, when using the term community, it is not always clear if it refers specifically to the Yuyangguan community, or if it is used to refer to a local scale. This creates confusion among the reader so I would suggest to check the manuscript and clarify this when necessary.

The introduction contains all the necessary information. However, the current order generates confusion among the readers. I would suggest to switch the first and second paragraph and include some connectors. Additionally, the use of the future sentence should be avoided.

Considering that readers might not be familiar with China’s administrative division and geography, the study area description should be complemented with basic geographic and administrative information. It is clear that the area is in the Hubei province, but is not clear in which Prefecture and/or County the communities are located, and what villages the selected communities include. Additionally, it would be interesting to mention when the area started to be inhabited and if there has been any recent intense urbanization development, considering that one of the landslide triggers are man-made actions, such as roads construction.

Since in some points you focused only in Yayangguan community and in some others, you complement it with information of and Chengguan community (i.e. line 175), I

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would suggest to clarify since the beginning what is the goal and scale of the analysis in both communities.

In the methodology section I suggest to include a figure with a conceptual map of the different components of the hazard and risk analysis process.

Technical corrections

The last sentence of the introduction is confusing “This achievement may also be utilised into community scale landslide risk assessment in a mountainous area in Hubei, China.” I would suggest you to check the whole paragraph in order to articulate the different sentences, while avoiding repetition.

In Fig. 1, please clarify what does each inset represent at administrative or geographical level. Inset (b) seems like a province but it looks deformed, and is not clear what the limits of inset (c) correspond to. Maybe you can try by adding thin administrative division lines at prefecture level. Additionally, it is recommended to include a frame in the bigger map to show where the zoom area is located (as done in Fig. 8).

Line 63, check the phrase “Weathered rocks in Silurian are the primary source of landslides.”, maybe you mean something like “As a consequence, weathered Silurian rocks are the primary source of landslides.”

Line 64, the sentence “Weathered rocks in Silurian are the primary source of landslides” seems to contradict the affirmation of the introduction regarding that “that Quaternary deposits and weathered eluvium from Ordovician limestone are the two major controlling factors.” This confusion is presented again in the first paragraph of the section 5.1.

Line 67, check the phrase “This fault is a seismic activity belt,”, seems to refer more to “This fault is a seismically active belt”

Line 75, check the phrase “Rainfall and human activities contribute significantly to the slope movement”, could be something like “Rainfall and human activities contribute

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significantly to trigger mass movements. . .”

Line 75, clarify that the mentioned landslides are just examples and connect this to the following paragraph.

All maps. Yayangguan and Chengguan communities should be labelled in all the maps

Figure 5. Please remove the labels that do not correspond to locations, but to specific buildings, ex. School, health center, etc.

Fig.5, 8, 11 it is not clear why the zoom frame shows the area around Huanglongzhai, instead that Yayangguan or Chengguan

Table II. I would suggest to organize the landslides by date, in order to allow the reader to have an idea of recurrence.

Line 148, explain what does W and W+ correspond to.

Line 238. I suggest to support the affirmation “Assuming that the past is the future, landslides in the study area will probably occur with the same amount of landslides over the next 50 years as the past 50 years.” That, considering Climate change, but also the anthropic incidence as landslide trigger. That affirmation depends largely in the history of the area, i.e. if the area has sustained a stable urban development in the last 50 years the affirmation is valid, but if it is not the case, then the affirmation should be supported with strong arguments.

Line 253. Please include some arguments to support the decision of using 50 000 cubic meters and 100 000 cubic meters for the size scenarios, since, according to Table II, there have been historic landslides with a considerably larger volume.

Fig. 10 (b). Correct the label of Number of landslides

Line 322, please check the wording of the last sentence of this paragraph.

Line 360, maybe you refer to “the number of landslides”, instead than “the number of

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historical". Please check

Line 364, regarding the affirmation "...risk management on slope units with very high-class hazard probability and very high-risk can be suggested as relocation or engineering works," the decision to relocate people is a delicate one, and should be taken based in a large array of information, not solely in risk maps of not detailed scale. In this case, I would suggest to review the affirmation and to propose a more detail geotechnical analysis of the very high-class areas, instead than inviting to relocate the people based solely in these results.

Line 368. Check the sentence coherence.

Best regards

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